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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,958	08/29/2000	Shinji Kimura	ASA-920	7131

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MATTINGLY, STANGER & MALUR, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER	
PATEL, ASHOKKUMAR B	

ART UNIT	PAPER NUMBER
2154	14

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/649,958	KIMURA ET AL.	
	Examiner	Art Unit	
	Ashok B. Patel	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 9-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 9-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 9-15 are subject to examination.

Response to Arguments

2. Applicant's arguments filed March 5, 2004 have been fully considered but they are not persuasive for the following reasons: The paramount importance must be given to the reasons for the capabilities of SAL, such as an interrupt detecting (806, Fig.8), reporting (808, Fig.8), calling to request status of interrupt device (814, Fig.8), providing register data (820, Fig.8), calling to clear interrupt (830, Fig.8), that are taught by the reference Solomon with respect to applicants arguments not needing a particular software dedicated to the exclusion operation of each device between OSs. The reference Solomon also teaches a software abstraction layer that provides an interface that allows a first operating system to run concurrently with a second operating system on the same data processing system (plurality of OSs are executed independently of one another) (Abstract) and, is neutral in principle such that it does not intervene unless and until it is asked by the OSs to provide the above stated functions and, has the capability of assigning and deleting a hardware device dynamically as stated above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to

a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Referring to claims 9-15,

4. Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Solomon (US 6,269,409) in view of Reneris (US 2002/0004810).

Referring to claim 9,

Solomon teaches a computer system comprising:

a first operating system (OS); (Fig.3, element 306), a multi-OS driver activated as a device driver of the first OS;(Solomon teaches incorporating a processing procedure common to plurality of operating system (Software Abstraction Layer (SAL), 320, Fig.3) as a device driver of first operating system (SAL provides an interface to execute an operating system, such as operating system 314 as a task under operating system 306, Fig.3 and col. 4, lines 4-6.), a second OS; and (Fig.3, element 314). SAL also has an interrupt detecting (806, Fig.8), reporting (808, Fig.8), calling to request status of interrupt device (814, Fig.8), providing register data (820, Fig.8), calling to clear interrupt (830, Fig.8) capabilities. Although, Solomon teaches a plurality of hardware devices, (Fig.2, elements 220-224) and SAL as a multi-OS driver, Solomon does not explicitly teach wherein a the multi-OS driver manages rights of using the hardware devices by the first and second OSs, and wherein when the first OS uses a first hardware device of the plurality of hardware devices, the first OS notifies the multi-OS driver of a request for use of the first hardware device, and in response thereto, the multi-OS driver notifies the first OS of permission for using the first hardware device, if a right of using the first hardware device has not been provided to the second OS. The reference Reneris

teaches a system and method for synchronizing disparate processing modes (First OS and second OS) and for providing mutually exclusive access to shared system resources (manages rights of using the hardware devices by the first and second OSs). A processing unit operates in disparate first and second processing modes. In the first processing mode, the computer is under the control of an operating system. In the other processing mode, the computer is under the control of a system management mode interrupt handling routine. To synchronize the two processing modes and allow mutually exclusive access to shared hardware resources, the computer system includes shared memory, which contains an intermodal lock (functionally multi-OS driver that manages rights of using the hardware devices by the first and second OSs) and a mechanism for allowing each processing mode to signal the other. Before either processing mode can access the shared resource, the processing mode must attempt to acquire the intermodal lock. If the lock is acquired, the processing mode accesses the shared resource. (Abstract) (when the first OS uses a first hardware device of the plurality of hardware devices, the first OS notifies the multi-OS driver of a request for use of the first hardware device, and in response thereto, the multi-OS driver notifies the first OS of permission for using the first hardware device, if a right of using the first hardware device has not been provided to the second OS.) Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify Solomon's SAL by adding Reneris's intermodal lock functionality and included in a shared memory such that one of the two disparate processing modes (First OS and second OS) can exclusively acquire the resources including hardware device. This

provides, a system where each processing mode should be required to acquire the lock prior to using particular resources, and to release the lock in a manner that allows efficient acquisition by the other environment

Referring to claim 10,

Keeping min the teachings of Solomon as stated above, although Solomon teaches a plurality of hardware devices, (Fig.2, elements 220-224) and SAL as a multi-OS driver (Software Abstraction Layer (SAL), 320, Fig.3) which is a processing procedure common to plurality of operating system that provides a communication facility between two operating systems (Figs 5 and 6), Solomon does not explicitly teach wherein when the first OS terminates use of the first hardware device, the first OS notifies the multi-OS driver of termination of using the first hardware device, and in response thereto, the multi-OS driver cancels the right of using the first hardware device assigned to the first OS. . The reference Reneris teaches a system and method for synchronizing disparate processing modes (First OS and second OS) and for providing mutually exclusive access to shared system resources. (Abstract). The reference also teaches when a processing mode (first OS) has finished accessing the shared resource, it releases the lock and checks to see if the pending bit was set. (when the first OS terminates use of the first hardware device, the first OS notifies the multi-OS driver of termination of using the first hardware device).(Abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify Solomon's SAL by adding Reneris's intermodal lock functionality and included in a shared memory such that one of the two disparate processing modes (first OS and second OS) can

exclusively acquire the resources including hardware device and when the resource using mode (OS) terminates the use of the resource (hardware device), it is communicated to the intermodal locking facility of SAL. This provides, a system where each processing mode should be required to acquire the lock prior to using particular resources, and to release the lock in a manner that allows efficient acquisition by the other environment.

Referring to claims 11 and 12,

Keeping min the teachings of Solomon as stated above, although Solomon teaches a plurality of hardware devices, (Fig.2, elements 220-224) and SAL as a multi-OS driver (Software Abstraction Layer (SAL), 320, Fig.3) which is a processing procedure common to plurality of operating system that provides a communication facility between two operating systems (Figs 5 and 6), Solomon does not explicitly teach wherein the multi-OS driver has a management table for managing the rights of using the plurality of hardware devices. The reference Reneris teaches that in order to synchronize the two processing modes and allow mutually exclusive access to shared hardware resources, the computer system includes shared memory, which contains an intermodal lock (wherein the multi-OS driver is stored in the memory in an area accessed by the first and second OSs) and a mechanism for allowing each processing mode to signal the other. Before either processing mode can access the shared resource, the processing mode must attempt to acquire the intermodal lock. (Abstract). Thereby, by virtue of the application of the intermodal lock stored in a shared memory which is accessible to both disparate processing modes, it contains the data structure that indicate the locks held

by a processing mode (OS) on the plurality of resources (a management table for managing the rights of using the plurality of hardware devices). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify Solomon's SAL by adding Reneris's intermodal lock functionality and included in a shared memory such that one of the two disparate processing modes (first OS and second OS) can exclusively acquire the resources including hardware device and when the resource using mode (OS) terminates the use of the resource (hardware device), it is communicated to the intermodal locking facility of SAL such that the data (management table) is stored. This provides, a system where each processing mode should be required to acquire the lock prior to using particular resources, and to release the lock in a manner that allows efficient acquisition by the other environment

Referring to claims 13,14 and 15,

The reference Solomon teaches Software abstraction layer (SAL), 320, Fig.3 (multi-OS driver) which mapped in a shared memory area (Fig.5, element 512) (wherein the multi-OS driver is mapped in the memory in such a manner that the multi-OS driver is located in a same address area in both memory space of the first OS and memory space of the second OS.). SAL also has an interrupt detecting (806, Fig.8), reporting (808, Fig.8), calling to request status of interrupt device (814, Fig.8), providing register data (820, Fig.8), calling to clear interrupt (830, Fig.8) capabilities. The reference Solomon also teaches Software abstraction layer (SAL), 320, Fig.3 (multi-OS driver) as a device driver of first operating system (SAL provides an interface to execute an operating system, such as operating system 314 as a task under operating system 306, Fig.3 and col. 4,

lines 4-6 Fig. 5, element 512) (when the first OS loads the multi-OS driver in the memory, the first OS maps the multi-OS driver at an arbitrary address area in the memory space of the first OS, and thereafter, alters mapping in such a manner that the multi-OS driver thus mapped is re-mapped in said same address area the first OS loads the second OS in an area of the memory allocated to the second OS, and activates the second OS, and the second OS maps the loaded multi-OS driver in said same address area.)

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (703) 305-2655. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abp

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JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100